Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] A method for cleaning a plurality of needles, each needle having at least one hollow interior shaft, the method comprising:
exposing the plurality of needles to a cleaning solution;
removing the plurality of needles from the cleaning solution; and
exposing simultaneously the at least one hollow interior shaft of each needle to a gaseous stream.

[c2] The method for cleaning of claim 1 further including rinsing the needles to remove the cleaning solution prior to exposing simultaneously the at least one hollow interior shaft of each needle to a gaseous stream.

[c3] The method of claim 1 wherein each needle includes a head at one end of the needle and a tip at the opposite end of the needle, wherein the at least one interior shaft is of a lesser diameter at the tip than at the head, and wherein the gaseous stream enters the plurality of needles through the tip and exits the plurality of needles through the head.

[c4] A method for cleaning a plurality of injector needles,

each injector needle having a head at one end of the injector needle, a tip at the opposite end of the injector needle and at least one hollow interior shaft, wherein the at least one interior shaft is of a lesser diameter at the tip than at the head, the method comprising:
inserting the plurality of injector needles into a needle board having a plurality of holes into which the plurality of injector needles are individually placed;
exposing the plurality of injector needles to a cleaning solution;
inserting the needle boards into a means for simultaneously exposing the at least one interior shaft of each injector needle of the plurality of injector needles to a gaseous stream; and
simultaneously exposing the at least one interior shaft of each injector needle of the plurality of injector needles to a gaseous stream.

[c5] The method of claim 4 further including placing the needle board holding the plurality of injector needles into a means for cleaning the injector needles prior to exposing the injector needles to the cleaning solution and removing the needle board from the means for cleaning after exposing the injector needles to the cleaning solution.

[c6] The method of claim 5 further including rinsing the injector needles to remove the cleaning solution prior to

removing the needle board from the means for cleaning.

[c7] The method of claim 5 wherein more than one needle board is inserted into the means for cleaning.

[c8] The method of claim 4 further including positioning the plurality of injector needles into the means for exposing the at least one interior shaft of each needle of the plurality of injector needles to a gaseous stream so that the gaseous stream enters the injector needles at the tip and exits the injector needles at the head, thereby simultaneously backflushing the plurality of injector needles.

[c9] A method for cleaning a plurality of injector needles, each injector needle having a head at one end of the injector needle, a tip at the opposite end of the injector needle and at least one hollow interior shaft, wherein the at least one hollow interior shaft is of a lesser diameter at the tip than at the head, the method comprising:
inserting the plurality of injector needles into a needle board having a plurality of holes into which the plurality of injector needles are individually placed;
placing the needle board holding the plurality of injector needles into a means for cleaning the injector needles;
exposing the plurality of injector needles to a cleaning solution;
rinsing the plurality of injector needles to remove the

cleaning solution;

removing the needle board from the means for cleaning;

inserting the needle board into a means for simultaneously backflushing the plurality of injector needles, the means for backflushing including a gaseous stream source for producing a gaseous stream;

positioning the plurality of injector needles so that the gaseous stream enters the plurality of injector needles at the tip and exits the plurality of injector needles at the head; and

backflushing simultaneously the plurality of injector needles by forcing the gaseous stream through the plurality of injector needles.

[c10] The method of claim 9 wherein the plurality of injector needles are multioraficed injector needles.

[c11] The method of claim 9 wherein more than one needle board is inserted into the cleaning means.

[c12] The method of claim 9 wherein more than one needle board is inserted in the means for backflushing simultaneously the plurality of injector needles.